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ABSTRACT

The progress, development, and evaluation of the Writing to Read computer program developed by John Henry Martin are detailed in the three sections of this paper. Describing the program as a writing-to-read system that relies initially on children's phonetic spelling--letting the sounds uttered be coded without attention to the inconsistencies of English spelling, the first section reviews several of the reports written about the program and the testing of the program in several states and concludes that the program does not provide for the individual needs of all the children. The second section reveals some of the criticisms of the program, as well as questions raised by parents and teachers. The final section notes that the conclusions reached in 1982-1983--the first year of the experiment--still stand at the end of the second and final year, and poses several questions, among them "How will the participants in the Writing to Read program be reading several years from now?" and "Will they have a favorable attitude toward reading?" A six-item bibliography concludes the document. (HOD)

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Writing to Read

In years past there have been some educators who have felt that the usual order followed in our schools, that is, read first, write later, should be reversed. As a matter of fact, there are educators who still feel that way.

In the March 1971 issue of Childhood Education, there appeared an article, by linguist Carol Chomsky, the very title of which bore this belief. Chomsky made her position clear in the article, "Write First, Read Later", when she said, "What I propose is that children be permitted to be active participants in teaching themselves to read. In fact, they ought to direct the process."

Chomsky offered encouragement in these words, "This task is not as hard or exotic as it sounds. Once they know the letters of the alphabet (sounds, not names), they should spend time putting letters together to make words of their own choosing." She found that reading the word once he/she had composed it was harder for the child than the composing had been. This made her question why schools expect the recognition of words first.

One very important point Chomsky made was that the adults working with the child must not expect the child's spelling to conform to adult pronunciation and linguistic judgments. She told of a little three-year-old child who spelled the word "wet"

CS 007 914

as r-a-t. For this child, r and w were alike when first in a syllable, she explained. The child knew only the names of the vowels, in this case, ey. As Chomsky reminded the reader, when the y is taken away, the correct sound is left - hence the child's choice of "a". He had no difficulty in completing the word with a "t".

Needless to say, a child cannot continue this type of spelling into adulthood, for communication would break down. However, Chomsky makes it clear that the important thing at this early stage is for the child to get practice in representing sounds according to the knowledge he/she has available at the time. With increased knowledge and proper feed-back and guidance, the transition to conventional spelling should present no problem. Meanwhile, the child finds out that "the written word is for real" as Chomsky so aptly puts it.

As a matter of fact, investigators of children's spelling have been able to isolate four sequential strategies through which most school-age children pass: pre-phonetic, phonetic, transitional, and correct. Some examples follow:

Word	Pre-phonetic	Phonetic	Transitional	Correct
eighty	at	ate	eigty	eighty
chirp	chp	chrp	chrip	chirp
type	tp	tip	tipe	type

Two of the investigators, Beers and Henderson, are thought by some to be pioneers in charting the notion of developmental spelling. Gentry, another investigator, and Henderson have offered

three steps for becoming a better teacher of spelling, and, consequently of reading and writing. Their suggestions follow:

1. Encourage creative writing.
2. De-emphasize standard spelling
3. Learn to respond to non-standard spelling appropriately.

On August 25, 1982, more than a decade since Chomsky's article, "Write First, Read Later," appeared in Childhood Education, an article entitled "Writing Before Reading is Premise of Computer Teaching," appeared in The News and Observer, a Raleigh, North Carolina, newspaper serving 127,208 people daily and 167,000 on Sunday. The article, by New York Times News Service, was based on an interview with John Henry Martin, the man who developed the program in Florida. This year IBM is testing Martin's program with 10,000 kindergarten and first grade students in several states. About 300 IBM Personal Computers are being loaned to participating schools. The J.H.M. Corporation of Stuart, Florida, headed by Martin, is providing the educational program. It has been reported that the multimillion-dollar program will be worth about $600,000 to North Carolina's Wake County Schools alone this year. The figure, supposedly, includes the loan of 85 of the IBM computers as well as Martin's program in which 3000 Wake County students will participate.

How the computer helps was included in the New York Times News Service article mentioned earlier. A verbatim account follows:

> How does the computer help? If you believe in the importance of tutoring individual children

> but can't have 10 million teachers for 10 million children, Martin says, the computer becomes an individual tutor. The one provided by IBM is capable of acting as a typewriter, primer, tape recorder and television screen. It produces color, sound and even chant. For example, the computer may show the picture of a cat, say the word, ask the children to repeat it and then spell the word cat.
>
> "This is the word cat," the computer says. "Say cat." Then "cat" moves to the top of the screen, and the computer says, "This is the sound c," and follows it up with the letter c and so forth. After this, there may be a rhythmic tune, and the computer asks the child to clap hands while chanting the words along with the computer.

The article also carried an explanation of the distribution of time in each one-hour class: computer, fifteen minutes; the rest of the time being used to develop writing skills with workbooks which emphasize writing first, or listening to recordings of children's classics as they learn to read the text.

It was also explained that with or without the computer, the writing-to-read system relies initially on children's phonetic spelling, that is, letting the sounds uttered be coded without attention to the inconsistencies of English spelling. Reportedly,[1] Martin's system is based on thirty key words composed of all the sounds necessary to speak English. Supposedly, teaching the children these regularized correspondences enables them to write much earlier than they could if they were required to absorb all the inconsistencies of English spelling.

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[1] IPD News (IBM magazine), Vol. 1, No. 3, Dec. 1982.

It is recalled that a number of years ago, some American schools adopted (experimentally) ITA, a system designed to help people learn to read English. The system has 44 characters which cover all 40 phonemes of the English language, thus eliminating the difficulty caused by the fact that the 40 phonemes are printed in over 2000 ways. Witness was borne to the dropping of it in a rather short time. Though it's true that many little children taught ITA have written more freely than their peers who have not, research has revealed that by the time they reach the intermediate grades, the results are vitiated.

An Associated Press article, "Talking Computers to Teach Tykes," with a Chapel Hill, North Carolina, dateline, had appeared in the August 14, 1982 edition of the Durham Morning Herald, a newspaper with a daily circulation of 40,837 and a Sunday circulation of 57,374. The article bore information similar to that first presented from The News and Observer, with one exception which follows: Twenty three-year-old children will be examined by researchers at the Frank Porter Graham Child Development Center at the University of North Carolina in Chapel Hill to see if younger children can benefit from the program, "Writing to Read."

Dr. Joseph F. Sparling of the Center points out a difference between the focus of this study and the focus of the nation-wide study. The schools participating in the nation-wide study will concentrate on how the program affects academic achievement whereas the work in the Child Development Center will be concerned with

how each individual reacts to the tutoring. Children's patterns of correct or incorrect answers will be studied in an effort to understand if there are any problems in teaching the very young to write to read.

The Chapel Hill Newspaper, with a daily circulation of 6,500 and a Sunday circulation of 7,500 contained, in the August 29, 1982 issue, some statistical information about the preliminary testing of Martin's "Writing to Read" program in Florida schools. The information follows:

> Test results showed that the students scoring in the 40th percentile of the Metropolitan Achievement Test scored in the 70th to 80th percentile after a year of being in the program.
>
> Forty percent of the children in the experiment were from families with incomes below the national poverty level, and 50 to 60 percent of them were black students.

The three newspapers mentioned serve the Research Triangle area in North Carolina. The total daily circulation is 174,545 and the Sunday circulation is 231,874. The Research Triangle is the small triangle formed by Duke University in Durham, the University of North Carolina in Chapel Hill, and North Carolina State University in Raleigh. The Triangle Park, a 5,500-acre tract is in the center of the Research Triangle and has been called the largest planned research park in the United States. Wake County, part of which lies in the Research Triangle, is reported as the largest single test of the IBM computers and the new educational program.

The proximity to the three universities and the large circulation of the three area newspapers provide considerable scrutiny of the "Writing to Read" program in Wake County. In addition, Educational Testing Service in Princeton, New Jersey, is to subject the program to a rigorous evaluation.

More detailed information about the preliminary testing of Martin's program was found in a paper by Martin, mailed on December 10, 1982 from the Wake County Public School System. The paper, "Writing to Read: A Computer-Based, Language Experience, Writing and Reading System for Young Children," by Dr. J.H. Martin, contained considerable detail on the preliminary testing of his program, 1976-1981. In addition, Dr. Martin admitted that questions have arisen concerning the changes that would be needed in the conventional language arts program as a result of radical revisions in expectations of first and second grade learning. One example he offered was that of touch typing. From a hunt-and-peck style of typing in first grade, Martin has devised a program to teach second graders to touch type. Of a private school that has been participating in his program, he has this to say, "The teaching staff, while mostly enthusiastic about our system find it difficult to understand that touch-typing is designed to do more than provide a life skill in finger dexterity; that direct composition on the machine is a highly desirable enhancement of children's ability to think."

A questioning teaching staff is both wholesome and desirable if the best interests of the children are to be served. A response

to the question, "In what direction do informal testing and subjective judgment lean at the moment as to the success of the program?" was received on January 19, 1983 from Joyce D. Zeh, Supervisor Language Arts/Reading in the Wake County Public School System? Ms. Zeh answered in part, "I do not know. I am sure that subjective judgment would vary from person to person."

The February 1983 issue of Keynotes, a monthly publication from the Wake County Public Schools, carried some favorable reports concerning the program - some from parents, some from teachers. It was reported that reviews are generally positive so far.

On the early evening news broadcast of March 15, 1983, information in direct contrast to the above was presented. The mother of a little kindergarten child in the experimental "Writing to Read" program denounced the phonemic spelling as she read and spelled several words to prove her point that the spelling was "incorrect". To strengthen her protest, she stated that her little son, now in first grade, was taught to read in kindergarten without a computer and without phonemic spelling. The little fellow then read, and his performance seemed to support her claim that he read well. When informed that the program was to continue for another year, she said that she would have to send her daughter to private school.

Apparently, however, a petition drive against the program was started shortly after this broadcast, for, early in April (April 6, 1983), The News and Observer bore news of another petition, this one supporting the program and being circulated in response to

the "negative petition" started earlier. According to the article, Wake School officials said that they felt parental support was more widespread than concern, and Joyce Zeh, the official in charge of "Writing to Read" said that children are shown conventional spellings of words along with phonetic ones and, at this stage of the school year, are substituting conventional spellings for phonetic ones.

In a letter dated April 22, 1983, Dr. Joseph Sparling of the Frank Porter Graham Child Development Center at the University of North Carolina in Chapel Hill sent a form letter with answers to the most-often asked questions. One of these answers follows:

> There are very limited descriptions of the process involved in the "Writing to Read" program. I am sure more will be written in the next year or two. For the present, I am enclosing an interview article[2] that is the best I have.

A few of the questions and answers in the interview article are offered:

> Q: You're using the computer to teach young children to read. How is your program different from the way reading is taught in most schools?
> Martin: Well, I'm not teaching children how to read; I'm teaching them to write because I've found that is a better introductory process for learning to read. It has greater validity than a direct frontal assault on decoding.
> Q: That's[3] the same principle as the Initial Teaching Alphabet, isn't it?
> Martin: Yes, but it differs from ITA in two ways. First, as I've said, we begin with writing. Second, our phonetic alphabet is a very simplified version of the dictionary pronunciation key.

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[2]"A Conversation with John Henry Martin"

[3]Teaching children to write words at first the way they sound.

> No adult has any problem with it because it's very familiar. For example, the phoneme oi is spelled oi as in "oil", "toil" and "boil". So our children write "boy" as "boi" but only for a little while because they quickly recognize that in books, it's "boy". At first they write the preposition "to" as "too", but I've seldom seen a child write it that way twice.
> Q: What about mentally retarded students?
> Martin: The children we've worked with were not categorized as mentally retarded or learning disabled, but only because it takes the school district until well into second grade to identify many of them. They're not categorized, but they're in there. The data I've given you included an unidentified number of these children.

In the June 7, 1983 issue of The News and Observer, mentioned earlier, there appeared an article stating that a nine-week program, designed particularly for students who did not complete the "Writing to Read" program in kindergarten this past year, will be offered it in first grade in the fall. The program is open, too, to children whose parents want them to review the program. After nine weeks, regular reading instruction is to resume.

The article lends credence to many teachers' knowledge concerning children: They learn at different rates; the ability to learn varies from child to child; and the way they learn is not the same for all children.

On June 22, 1983, a communication from Joyce Zeh, Reading Coordinator of "Writing to Read" in the Wake County, North Carolina, Public Schools revealed that the April 15 IBM report they received showed that 84% of their kindergarten students were writing words and 60% were writing complete sentences.

This information raises several questions: What was the quality of the sentences? What proportion of the spelling was standard? Phonemic? How many sentences did the average child write? What was the actual word count in these sentences?

Ms. Zeh added in her letter that they are in the process of designing their own evaluation procedure and that it will be separate from the national evaluation to be done by ETS.

A communication, sent on July 5, 1983, by Richard Murphy, a researcher for ETS, included a Summer 1983 issue of ETS Developments published quarterly by ETS. The issue contained some statistics from a preliminary report released in February and based on observations by Murphy, Appel, and ETS researcher Forehand as well as on completed questionnaires. The ETS researchers reported:

> 80% of all teachers like the program somewhat or very much;
> 16% don't like it at all;
> 57% of kindergarten teachers and 63% of first grade teachers believe that student learning is enhanced:
> 97% of the principals like it, with 64% saying they like it very much.

The team observed 84 "Writing to Read" classes in 20 schools in the District of Columbia and five states - Florida, North Carolina, Minnesota, Texas, and New York. Murphy stated that the critical element of the "Writing to Read" system is that it lets children build on their rich oral communication skills and not be inhibited in so doing.

Murphy noted that many teachers expressed concern about transi-

tion from phonemic to standard spelling. He noted, too, that many kindergarten teachers feel that the system should not be introduced until the second half of the year.

The 150 randomly selected children who were observed were rated high on attention and enthusiasm in general during the class, and especially so when working on the personal computers and typewriters. This, too, raises questions: Is it the novelty of the computers and the typewriters that holds attention? Were the children aware that they were being observed? If so, were they putting on their best behavior?

According to Mr. Murphy, the educational impact of the system will be assessed in the summative evaluation to be conducted next year, 1983-1984.

The July 28, 1983 issue of The News and Observer bore news to the effect that students in "Writing to Read" outscored their peers on skill tests - the California Achievement Tests. The Superintendent noted several reasons for this, among them, a consistency of program, the training given to teachers, and the fact that the computers were a motivational force.

The above reasons raise some questions: Couldn't they be used for almost any program? Would the use of a different standardized test have shown the same results?

It is felt that the only true evaluation of the program would be a long-term assessment of the reading habits and attitudes of the students who have participated in it, as answers to the following questions are sought:

DO they read?
WHAT do they read?
Do they ENJOY their reading and PROFIT by it?
Are they taking their part in a thinking and well-informed citizenry, so essential in a democracy?

Tentative Conclusions
1982-1983

It is concluded that the program as herein described doesn't provide for the individual needs of all the children. Coordination, fusion, and social, mental and emotional maturity are among the essentials for success in academic learning, and it is well known that development in these areas does not occur in all children at the same time. Additional factors such as learning styles, attention spans, and cultural needs, also considered important to success in academic learning, are hard to provide for when all children are given approximately the same program. Though it's true that each child might proceed at his/her own rate in such a program, it is felt that this would be individual pacing, not individualized instruction.

The use of the time spent in developing the children's writing skills and the use of workbooks which emphasize writing first are both questioned. Obviously, all children don't develop at the same rate, and it would seem that if writing first is emphasized, that procedure is merely reversing the existing problem, that is, attending to reading first.

Consistent use of phonemic spelling is questioned as it is felt that it doesn't provide children with reinforcement from the

many visible materials around them such as food labels, advertisements on TV, street signs, story books, etc. Children's inventive spelling has been found to be highly systematic and fairly uniform from child to child. The spelling - m-i-n-i-t, e-n-u-f, etc. - is quite readable, and, therefore, should not be a deterrent insofar as letting little children write is concerned. There are, however, exceptions to this uniformity which need to be understood and treated individually. The child who spelled the word wet as r-a-t is a case in point.

With no intent whatever to underestimate the wonders of the computer, several questions have come to mind regarding its use at this point in teaching little kindergarten children to read. Martin claims that his program can be used without it, nevertheless it is being used in this experimental program. Some of the questions that come to mind follow:

1. Can the computer hear a little child sigh or moan?
2. Can the computer see a frown or drooped eyelids?
3. Can the computer give an encouraging smile or the touch of a human hand on a sagging shoulder?
4. Can the computer provide for higher reading skills such as interpreting and evaluating? It is felt that early on the seeds for these skills are planted. Little children have thoughts about stories, and, if given a chance, are able to defend them logically. This, then, is the beginning of intelligent reading so essential in a democracy.

Decades of experience in the field of reading have been convincing in the belief that there is no one way to teach all children to read and write.

Finally, it is believed that it isn't a question of which

comes first, reading or writing, for it is believed that they should be integrated throughout a child's school life.

Implications for Teachers

1. Establish a relaxed classroom climate in which children are free to examine the provided wealth of materials covering many experiences and interests.

2. Integrate reading and writing; they complement each other. Provide adequate time for each.

3. Develop an encouraging and receptive attitude toward children's reading and writing attempts.

4. Provide appropriate feed-back, that is, feed-back based on individual needs. This has proved more effective than isolated formal instruction.

5. For the benefits of group dynamics as well as for economy of time, groupings are possible and are encouraged. Some suggestions follow: grouping for sharing, grouping for similar skill needs, friendship groupings and interest groupings.

6. Stimulate divergent thinking in the classroom.

7. Get children to want to write rough drafts and revisions, so essential to writing growth, through motivation, encouragement, and proper feed-back rather than through force.

8. Don't force children to share their stories.

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Writing to Read: 1983-1984

Part II

Throughout the second and final year of the multimillion-dollar experimental program, "Writing to Read," which was tested in several states, there appeared in various newspapers and magazines, reports on the program. A substantial number of the reports were favorable. Some writers, however, though recognizing insiders' enthusiasm for the program, included, in their writing, outsiders' criticisms. Lesli Rotenberg wrote:

> Despite insiders' enthusiasm, some outsiders criticize the "Writing to Read" program as subjecting kids to monotonous drill and concentrating too heavily on phonetics. Dr. Bill Barber, reading professor at Berry College in Mount Berry, Georgia, says the program "violates research that shows the importance of whole-word learning."

Lerner is among those who have called attention to children with holistic strengths. She reminded her readers of the work of Goins, who, back in 1958, found that some learners are "whole perceivers" and some are "part perceivers." Of course, it is generally felt that children who use both hemispheres cooperatively achieve greater academic success and seem to fare better socially.

As the school year wore on, material regarding the program was sought from some school officials. On May 14, 1984, Joyce Zeh, Supervisor Language Arts/Reading in the Wake County, North

Carolina, Schools, mailed considerable material on "Writing to Read", immediately after a telephone conversation in which she said that officials in the Wake County Schools had done some testing of their own and were well pleased with the results. Though they had not yet received any test results from Educational Testing Service, they had decided to make "Writing to Read" a regular part of their curriculum in the fall of '84.

Ms. Zeh enclosed a copy of "Observations of the Writing to Read Program." These observations indicate that questions raised by parents and teachers during the first year of the program had been resolved. A copy of the observations follows:

OBSERVATIONS OF THE WRITING TO READ PROGRAM

- WTR encourages early intervention for auditory discrimination problems, hearing loss, and visual problems.
- WTR children are more self-directed.
- Outstanding self confidence occurs when the students realize their ability to rearrange the phonemes writing any words they can say.
- Most kindergarten students, four months into the program, are writing sentences.
- Highly motivational.
- Extremely popular program with students, parents, teachers, and administrators.
- Traditional spelling becomes a natural transfer from the phonemic spelling as students become increasingly aware of the printed words around them.
- Writing to Read children write early with sophistication because they write the way they speak. They do not fear the conventions that plague the child who is taught first the mechanics with emphasis on perfection of form. As they

begin to edit, rewrite, proofread, and type their stories, their compositions retain their freshness and remarkable creativity.

- WTR students who are now in the first grade are reading at much higher levels than before in our basal program. The schools, therefore, are needing more supplementary books for classroom use.

- Teachers who are using the Success Reading Program in the WTR schools have found it necessary to modify the phonics module and the creative writing module because the students have skills too advanced for the program as written.

- In the media centers the first grade students are reading many more books than before, and their reading interests have become more varied including content area selections. Additional books in our libraries and media centers are also a need.

During February of 1984, a letter received from Brenda Bergeron, Secretary/Research Asst. at the Frank Porter Graham Child Development Center, University of North Carolina in Chapel Hill, didn't seem to reveal great enthusiasm. Parents had questions about the transition from phonetic to traditional spelling. Another statement from Ms. Bergeron's letter emphasizes individual differences. The statement follows: "Data gathered from pre and post tests on letter knowledge show a wide range of child success in gaining name and sound knowledge of letters."

Another bit of information which Ms. Bergeron included raises a question. She wrote, "The program did not do as much as was hoped in terms of teaching a child to decode words not specifically learned on the computer. Therefore, it was felt that more extensive work needed to be done with the supplementary materials."

An Associated Press article, "Kindergartners Learn from Computers," found in the July 25, 1984 issue of The Durham Sun,

reinforced information received from the Frank Porter Graham Child Development Center in February, and the enthusiasm of Wake County officials as well. The two supportive statements follow:

> Officials say an experimental program using computers to teach kindergartners to read and write is working well in three North Carolina school systems, but they're unsure if younger learners should participate.
>
> Officials at the Frank Porter Graham Child Development Center, run by the University of North Carolina at Chapel Hill, remain undecided about whether to continue using the program with the pre-kindergarten children.

Douglas Sloan has raised the question as to what the computer is doing in developing emotional rationality and image-making in children. He has stated, "Qualitative knowing -- the only kind capable of grasping living and personal reality -- requires a rich, vital emotional life." Farther on, he adds, "Closely related to emotional rationality is the part played by the image in thinking." He raises this question, "What is the effect of the flat, two-dimensional, visual, and externally supplied image, and of the lifeless though florid colors of the viewing screen, on the development of the young child's own inner capacity to bring to birth living, mobile, creative images of his own?"

It is felt that Sloan has offered much food for thought. It is further felt that the claim made for the computer as a great motivational force raises the question, "Can this same claim be made when the use of the computer becomes much more common?"

Results from the testing done by Educational Testing Service in Princeton, New Jersey, were received on September 12, 1984. The

paper was read with interest, but it brought to mind a number of questions, some of which follow:

1. What standardized tests were used?
2. What were the standardized conditions under which writing samples were collected?
3. Wouldn't it be important to know more about the backgrounds of the children?
4. What were the specific concerns expressed by teachers about the effectiveness of the program for low achieving children?
5. Doesn't the following statement give us some pause? "Impact on reading was positive and significant in kindergarten but not in first grade."

Years of experience have taught that there is no one way to teach all children to read; that reading is extremely difficult for some children; and that non-readers still exist. Fortunately, we have some learned educators who are raising vital questions about the teaching of reading. Hopefully, this will result in improved reading instruction for all children as some of the questions seem to have a bearing on the uniqueness and well-being of the child: questions about holistic learners, about the development of emotional rationality and image-making in children, many questions about the importance of qualitative thinking in the acquisition of knowledge, etc.

The ETS evaluation is attached to the end of this report to enable those who have been interested in the "Writing to Read" program to draw their own conclusions about the evaluation.

Conclusions: 1983-1984

The conclusions reached in 1982-1983, the first year of the experiment, still stand at the end of this second and final year, and some vital questions are raised:

> How will the participants in "Writing to Read" be reading several years from now? Will they have a favorable attitude toward reading? How will their reading abilities and attitudes compare with those of their peers who did not participate in the experiment?

It is felt wise to reserve final judgment until these questions are answered.

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EVALUATION OF THE "WRITING TO READ" PROGRAM

The two-year evaluation of "Writing To Read", an instructional program in reading and writing for kindergarten and first grade children, has been completed. The program uses the IBM Personal Computer to teach children a system of 42 corresponding sounds and symbols which they use to write words, sentences, and stories. IBM funded the two year field test of the program in approximately 150 schools throughout the United States.

ETS conducted a formative evaluation of the program during the first year (1982-83). The teacher training program was systematically observed and information provided to IBM and the developers for use in revising the training program. A sample of Writing to Read schools were observed and activities of teachers, students, and aides were documented and described. Teachers, parents, principals, and other school district personnel were surveyed and interviewed. Three reports were submitted to IBM - (1) a confidential report summarizing the first four months of the project and including many teacher comments on the training procedures and the difficulties experienced in the early implementation of the project (February 1983); (2) a first year report summarizing the opinions and judgments of teachers, parents, and administrators about the impact of Writing to Read on the reading and writing skills of the children, and a detailed description of the evaluation plan for 1983-84 (August 1983); and (3) a summary report of charts and graphs suitable for making overhead transparencies and presenting results in a pictorial fashion (August 1983).

ETS conducted a summative evaluation of the program during the second year (1983-84). Approximately 6000 children in kindergarten and first grade were pretested and posttested using standardized reading tests in 35 Writing to Read schools and 25 similar comparison schools. At the end of the school year, writing samples were collected under standardized conditions from the children in the evaluation sample and also from a sample of first grade children who had been in the Writing to Read program while in kindergarten in the 1982-83 school year. A sample of children were also given a brief spelling test. Teachers and parents of Writing to Read children and comparison children were surveyed in the spring of the year. A final report was submitted to IBM in July 1984.

Results of the evaluation show that the Writing to Read system worked as intended, the children used the personal computers and other equipment (typewriters, tape recorders) with considerable facility and independence. The impact of Writing to Read on the writing skills of the children was very positive and significant in both kindergarten and first grade. Impact on reading was positive and significant in kindergarten but not in first grade. In spelling, the Writing to Read and Non-Writing to Read children performed about the same. Teachers generally reacted favorably to the Writing to Read program with concern expressed about its effectiveness for low achieving children. Parents also reacted favorably to the program.

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